CHAPTER 7. APPLICABLE LAWS, REGULATIONS, AND OTHER REQUIREMENTS

This chapter identifies and summarizes the major laws, regulations, Executive Orders, and U.S. Department of Energy (DOE) Orders that could apply to the closure of the high-level waste (HLW) tank systems at the Savannah River Site (SRS). Permits or licenses could be required under some of these laws and regulations. EC

Section 7.1 describes the process DOE used to develop the methodology and performance standards for closure of the SRS HLW tank systems. Section 7.2 discusses the major Federal and State of South Carolina statutes and regulations that impose environmental protection requirements on DOE and that require DOE to obtain approval prior to closing the HLW tank systems. Each of the applicable regulations establishes how potential releases of pollutants and radioactive materials are to be controlled or monitored and include requirements for the issuance of permits for new operations or new emission sources. In addition to environmental permit requirements, the statutes may require consultations with various authorities to determine if an action requires a permit or the implementation of protective or mitigative measures. Sections 7.2.1 and 7.2.2 discuss the environmental permitting process and list the environmental permits and consultations (see Table 7-1) applicable to closure of the SRS HLW tank systems.

Sections 7.3 and 7.4 address the major Federal statutes, regulations, and Executive Orders, respectively, which address issues such as protection of public health and the environment, worker safety, and emergency planning. The Executive Orders clarify issues of national policy and set guidelines under which Federal agencies must act.

DOE implements its responsibilities for protection of public health, safety, and the environment through a series of departmental regulations and orders (see Section 7.5) that are typically mandatory for operating contractors of DOE-owned facilities.

7.1 Closure Methodology

7.1.1 CLOSURE STANDARDS

The SRS HLW tank systems are permitted by the South Carolina Department of Health and Environmental Control (SCDHEC) under authority of the South Carolina Pollution Control Act (SC Code Ann., Section 48-1-10, et seq.) (see Section 7.2.1) as industrial wastewater treatment facilities. DOE is required to close the HLW tank systems in accordance with Atomic Energy Act requirements (e.g., DOE Orders) and SC Regulation R.61-82 "Proper Closeout of Wastewater Treatment Facilities." This regulation requires the performance of such closures to be carried out in accordance with site-specific guidelines established by SCDHEC to prevent health hazards and to promote safety in and around the tank systems. To facilitate compliance with this requirement and to recognize the need for consistency with overall remediation of SRS under the Federal Facility Agreement (see Section 7.3.2), DOE has adopted a general strategy for HLW tank system closure that includes evaluation of an appropriate range of closure alternatives with respect to pertinent, substantive environmental requirements and guidance and other appropriate criteria (e.g., technical feasibility, cost). The general strategy for HLW tank system closure is set forth in the *Industrial Wastewater Closure Plan for the F- and H-Area High-Level Waste Tank Systems* (DOE 1996a). The general strategy is consistent with comparative analyses performed as part of a corrective measures study/feasibility study under the Federal Facility Agreement. EC

DOE will close all of the HLW tank systems in the F- and H-Area Tank Farms in accordance with the general strategy, including Tank 16,

Table 7-1. Environmental permits and consultations required by law (if needed).

Activity/Topic	Law	Requirements	Agency
Site Preparation	Federal Clean Water Act (Section 404)	Stormwater Pollution Prevention Plan for Industrial Activity	SCDHEC[a]
Wastewater Discharges	Federal Clean Water Act S.C. Pollution Control Act	Stormwater Pollution Prevention/Erosion Control Plan for Construction Activity	SCDHEC
		NPDES[b] Permit(s) for Process Wastewater Discharges	SCDHEC
		Process Wastewater Treatment Systems Construction and Operation Permits (if applicable)	SCDHEC
		Sanitary Waste Water Pumping Station Tie-in Construction Permit; Permit to Operate	SCDHEC
Air	Clean Air Act – NESHAP[c]	Rad Emissions - Approval to construct new emission source (if needed)	EPA[d]
		Air Construction and Operation permits - as required (e.g., Fire Water Pumps; Diesel Generators)	SCDHEC
		General source - stacks, vents, concrete batch plant	SCDHEC
		Air Permit - Prevention of Significant Deterioration (PSD)	SCDHEC
Domestic Water	Safe Drinking Water Act	Construction and operation permits for line to domestic water system	SCDHEC
Endangered Species	Endangered Species Act	Consultation	U.S. Fish and Wildlife Service, National Marine Fisheries Service
Migratory Birds	Migratory Bird Treaty Act	Consultation	U.S. Fish and Wildlife Service
Historical/Cultural Resources	National Historic Preservation Act	Consultation	State Historic Preservation Officer

a. South Carolina Department of Health and Environmental Control.
b. National Pollutant Discharge Elimination System.
c. National Emissions Standards for Hazardous Air Pollutants.
d. U.S. Environmental Protection Agency.

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which is no longer operational and hence was not permitted as part of the industrial wastewater treatment facility. With respect to closure, Tank 16 is subject to the same considerations that determine acceptable closure alternatives for the other 50 HLW tank systems. The past release from Tank 16 that resulted in its removal from service will be addressed along with the releases from the Tank 37 condensate transfer system as part of the H-Area Tank Farm Groundwater Operable Unit in accordance with the Federal Facility Agreement.

The General Closure Plan identifies the resources potentially affected by contaminants remaining in the tanks after waste removal and closure, describes how the tanks would be cleaned and how the tank systems and residual wastes would be stabilized, and identifies Federal and State environmental regulations and guidance that apply to the tank closures. It also describes the methodology using fate and transport models to calculate potential environmental exposure concentrations or radiological dose rates from the residual waste left in the tank systems and provides a methodology to account for closure impacts of individual tank systems, such that all closures would comply with environmental standards. This Closure Plan specifies the management of residual waste as waste incidental to reprocessing.

In developing its general closure strategy that includes extensive consultation with environmental regulators, DOE identified the substantive environmental requirements and guidance documents most pertinent to the selection and implementation of HLW tank system closure options. These requirements and guidance are comparable to those established as applicable or relevant and appropriate requirements (known as "ARARs") and to-be-considered materials (known as "TBCs") in the context of a corrective measures study/feasibility study under the Federal Facility Agreement. A compilation of the ARARs and TBCs can be found in Appendix C of DOE (1996a).

DOE reviewed the requirements and guidance to identify (1) standards for environmental protection that are invoked by more than one regulatory program or authority, and (2) conflicting requirements. This process resulted in a list of requirements and guidance, including DOE Orders (435.1, 5400.1, 5400.5) and State and Federal regulations, that DOE used to identify specific regulatory standards for protection of human health and the environment. Overlapping requirements and guidance were reduced to a single list representing only the most stringent or most specific standards. This listing became the closure performance standards. The performance standards are generally numerical, such as concentrations or dose limits for specific radiological or chemical constituents in releases to the environment, which are set forth in the requirements and standards guidance. The numerical standards apply at different points of compliance and at varying times during or after closure. The performance standards apply to the entire tank farm area. Performance standards are established for environmental media. For example, the performance standard for groundwater will be the groundwater protection standard applied at the point where groundwater discharges to the surface (known as the seepline). For surface water, the performance standard will be the surface water quality standard applied in the receiving stream. Tables 7-2 and 7-3 present the radiological and nonradiological water quality criteria identified as performance standards for the SRS HLW tank closures.

7.1.2 PERFORMANCE OBJECTIVE

DOE will establish performance objectives for closure of each HLW tank. Each performance objective will correspond to a performance standard in the Closure Plan. Performance objectives will normally be more stringent than the performance standard. For example, if the performance standard for drinking water at the seepline is 4 millirem per year, the contribution of contaminants from all tanks (and other facilities) will not exceed the 4 millirem per year limit. DOE will evaluate closure options

Table 7-2. Nonradiological groundwater and surface water performance standards applicable to SRS HLW tank closure.

Constituents of concern[a]	Maximum contaminant level (40 CFR §141.62) (mg/l)	Maximum contaminant level goal (40 CFR §141.51) (mg/l)	Maximum contaminant levels (SC R.61-58.5.B(2)) (mg/l)	Water quality criteria for protection of human health (SC R.61-68, Appendix 2) (mg/l)	Criteria to protect aquatic life (SC R.61-68, Appendix 1) (mg/l)	
					Average	Maximum
Aluminum					0.087	0.750
Chromium III				637.077	0.120	0.980
Chromium VI				0.050	0.011	0.016
Total chromium	0.1	0.1	0.1		0.011	0.016
Copper		1.3			0.0065	0.0092
Fluoride	4.0	4.0	4.0			
Iron					1.000	2.000
Lead		zero[b]		0.050	0.0013	0.034
Mercury	0.002	0.002	0.002	1.53×10^{-4}	1.2×10^{-5}	0.0024
Nickel			0.1	4.584	0.088	0.790
Nitrate	10 (as N)	10 (as N)	10 (as N)			
Nitrite	1 (as N)	1 (as N)	1 (as N)			
Total nitrate and nitrite	10 (as N)	10 (as N)	10 (as N)			
Selenium	0.05	0.05	0.05	0.010	0.0050	0.020
Silver				0.050		0.0012

Source: DOE (1996a).
a. Includes SRS HLW constituents for which water quality performance standards were identified.
b. Action level for lead is 0.015 mg/l.

Table 7-3. Radiological groundwater and surface water performance standards applicable to SRS HLW tank closure.

Constituent of concern	Standard
Beta particle and photon radioactivity	4 mrem/yr
Combined radium-226 and radium-228	5 pCi/l
Gross alpha	15 pCi/l (including radium-226 but excluding radon and uranium)
Tritium	20,000 pCi/l
Strontium	8 pCi/l
Radiation dose to native aquatic organisms	1 rad/day from liquid discharges to natural waterways

Source: DOE (1996a).

for specific tank systems to determine if use of a specific closure option will allow DOE to meet the performance objectives. Based on this analysis, DOE will develop a closure module for each HLW tank system such that the performance objectives for the tank system can be met.

The performance evaluation will focus on the exposure pathways and contaminants of most concern for a specific HLW tank system. DOE anticipates that the exposure pathway of most concern will be the contaminant release to groundwater and migration to onsite streams. The contaminants of most concern will be those subject to the most stringent performance standards for points of compliance within the exposure pathway. The lowest concentration limit for a specific constituent would become the performance objective for that constituent.

L-7-55 An example of comparison to performance objectives (conformance to drinking water standard at the F-Area Tank Farm seepline) is provided in Table 7-4.

7.1.3 INCIDENTAL WASTE

The terms "incidental waste" or "waste incidental to reprocessing" refer to a process for identifying wastes that might otherwise be considered HLW due to their origin, but are actually managed as low-level or transuranic waste, as appropriate, if the waste incidental to reprocessing requirements contained in DOE Radioactive Waste Management Manual (DOE M 435.1-1) are met. This is a process by which DOE can make a determination that, for example, waste residues remaining in HLW tanks, equipment, or transfer lines are managed as low-level or transuranic waste, if the requirements in Section II.B of DOE M 435.1-1 have been or will be met.

The requirements contained in DOE M 435.1-1 are divided into two processes: the "citation" process and the "evaluation" process. When determining whether spent nuclear fuel reprocessing plant wastes are another waste type or HLW, either the citation or evaluation process described in DOE M 435.1-1 shall be used.

- Citation – Waste incidental to reprocessing by "citation" includes spent nuclear fuel processing plant wastes that meet the "incidental waste" description included in the Notice of Proposed Rulemaking (34 FR 8712, June 3, 1969) for promulgation of proposed Appendix D, 10 CFR Part 50, Paragraphs 6 and 7. These radioactive wastes are the result of processing plant operations, such as, but not limited to, contaminated job wastes, such as laboratory items (clothing, tools, and equipment).

- Evaluation – Waste incidental to reprocessing by "evaluation" includes spent nuclear fuel processing plant wastes that:

  (a) Will be managed as low-level waste and meet the following criteria: (1) have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical; and (2) will be managed to meet safety requirements comparable to the performance objectives set out in 10 CFR Part 61; and (3) are to be managed, pursuant to DOE's authority under the *Atomic Energy Act of 1954*, as amended, and in accordance with the provisions of Chapter IV of this Manual [DOE M 435.1-1], provided the waste will be incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low-level waste as set out in 10 CFR 61.55, Waste Classification; or will meet alternative requirements for waste classification and characterization as DOE may authorize. TC

  (b) Will be managed as transuranic waste and meet the following criteria: (1) have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical; and (2) will be incorporated in a

Table 7-4. Comparison of modeling results to performance objectives at the seepline.[a]

	Units	Adjusted PO	F-Area GTS impact	Previous closures impact[b]	Tank 17 impact	Remaining PO
Radiological						
Beta-gamma dose	mrem/yr	4.0	1.9	0.0055	0.022	3.99
Alpha concentration	pCi/L	15	3.9×10^{-2}	(c)	(c)	15
Nonradiological						
Nickel	mg/L	0.1	(d)	0	(d)	0.1
Chromium[e]	mg/L	0.1	4.6×10^{-5}	5.0×10^{-6}	1.1×10^{-5}	0.1
Mercury	mg/L	0.002	(d)	0	(d)	0.002
Silver	mg/L	0.05	1.7×10^{-3}	1.9×10^{-4}	4.1×10^{-4}	0.049
Copper	mg/L	1.3	(d)	0	(d)	1.3
Nitrate	mg/L	10 (as N)	1.2×10^{-2}	1.3×10^{-3}	7.5×10^{-3}	10 (as N)
Lead	mg/L	0.015	(d)	0	(d)	0.015
Fluoride	mg/L	4.0	1.1×10^{-3}	1.3×10^{-4}	2.7×10^{-4}	4
Barium	mg/L	2.0	(d)	0	(d)	2

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a. Source: DOE (1997a).
b. Tank 20.
c. Concentration is less than 1.0×10^{-13} pCi/L.
d. Concentration is less than 1.0×10^{-6} mg/L
e. Total chromium (chromium III and VI).
PO = Performance Objective; GTS = Groundwater Transport Segment.

TC

solid physical form and meet alternative requirements for waste classification and characteristics, as DOE may authorize; and (3) are managed pursuant to DOE's authority under the *Atomic Energy Act of 1954*, as amended, in accordance with the provisions of Chapter III of this Manual [DOE M 435.1-1], as appropriate."

Those waste streams that meet the requirements, either by citation or evaluation, would be excluded from the scope of HLW. In the absence of an "incidental waste" or "waste incidental to reprocessing" determination, DOE would continue management of HLW due to its origin as HLW, regardless of its radionuclide content.

Per DOE guidance in DOE G 435.1, the DOE Field Element Manager is responsible for ensuring that waste incidental to reprocessing determinations are made consistent with either the citation or the evaluation process. A determination made using the evaluation process will include consultation and coordination with the DOE Office of Environmental Management.

The U.S. Nuclear Regulatory Commission (NRC) has participated in regulatory reviews using these evaluation criteria in the past and has expertise that is expected to complement DOE's internal review. Hence, consultation with NRC staff regarding the requirements for the evaluation process is strongly encouraged under the guidance for DOE O 435.1.

DOE has consulted with NRC regarding the incidental waste determination for the SRS tank system residuals. To facilitate the consultations, DOE prepared a demonstration that the material remaining in the SRS tank systems at closure satisfies criteria for classification as "incidental waste" (DOE 1997b). NRC has completed its review of the Savannah River Operations Office's HLW tank closure methodology and concluded that DOE's methodology reasonably analyzes the relevant considerations for an incidental waste determination (65 FR 62377, October 18, 2000).

7.1.4 ENVIRONMENTAL RESTORATION PROGRAM

Upon completion of closure activities for a group of tanks (and their related equipment) in a particular section of a tank farm, responsibility for the tanks and associated equipment in the group would be transferred to the SRS environmental restoration program. The environmental restoration program would conduct soil assessments and remedial actions to address any contamination in the environment (including previous known leaks) and develop a post-closure strategy. Consideration of alternative remedial actions under the remediation program is outside the scope of this environmental impact statement (EIS), and would be conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. However, DOE has established a formal process to ensure that tank closure activities are coordinated with the environmental restoration program. This process is described in the *High-Level Waste Tank Closure Program Plan* (DOE 1996b). This process requires that, once a group of tanks in a particular section of a tank farm is closed, the HLW operations organization and the environmental restoration organization would establish a Co-Occupancy Plan to ensure safe and efficient soils assessment and remediation.

The HLW organization would be responsible for operational control and the environmental restoration organization would be responsible for environmental restoration activities. The primary purpose of the Co-Occupancy Plan is to provide the two organizations with a formal process to plan, control, and coordinate the environmental restoration activities in the tank farm areas. The activities of the environmental restoration program would be governed by the CERCLA, Resource Conservation and Recovery Act (RCRA) corrective action, and the Federal Facility Agreement between DOE, SCDHEC, and the U.S. Environmental Protection Agency (EPA). As such, it is beyond the scope of this EIS.

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DOE's HLW tank closure strategy was designed to be consistent with the requirements of RCRA and CERCLA under which the tank farms will eventually be remediated. The details of the proposed closure configuration for individual tank systems will be detailed in modules that are submitted to SCDHEC for approval. The modules are also provided to the SCDHEC and EPA Region IV Federal Facility Agreement project managers for review to ensure consistency with the Agreement's requirements for overall remediation of the tank farms. DOE's intention is that HLW tank closure actions would not interfere with or foreclose remedial alternatives for past releases.

7.2 Statutes and Regulations Requiring Permits or Consultations

Environmental regulations require that the owner or operator of a facility obtain permits for the construction and operation of new (water and air) emissions sources and for new domestic drinking water systems. To obtain these permits, the facility operator must apply to the appropriate government agency for a discharge permit for discharges of wastewater to the waters of the state and submit construction plans and specifications for the new emission sources, including new air sources. The environmental permits contain specific conditions with which the permittee must comply during construction and operation of a new emission source, describe pollution abatement and prevention methods to be utilized for reduction of pollutants, and contain emissions limits for pollutants which will be emitted from the facility. Section 7.2.1 discusses the environmental statutes and regulations under which DOE will be required to obtain permits. Table 7-5 identifies the major State of South Carolina statutes and their implementing regulations applicable to HLW tank system closures. The table also provides the underlying Federal statutes and implementing regulations. Table 7-1 lists the permits.

Table 7-5. Major state and federal laws and regulations applicable to high-level waste tank system closures.

South Carolina laws and regulations	Federal laws and regulations
South Carolina Pollution Control Act (SC Code Section 48-1-10)	Clean Air Act (42 USC 7401)
	Clean Water Act (33 USC 1251)
Safe Drinking Water Act (SC Code Section 44-55-10)	Safe Drinking Water Act (42 USC 300(f))
Hazardous Waste Management Act (SC Code Section 44-56-10)	Resource Conservation and Recovery Act (42 USC 6901 et seq.)
R.61-9 Water Pollution Control Permits	40 CFR Part 122 *EPA Administered Permit Programs: The National Pollutant Discharge Elimination System*
R.61-58 *State Primary Drinking Water Regulations*	40 CFR Part 141 *National Primary Drinking Water Regulations*
R. 61-62 *Air Pollution Control Regulations and Standards*	40 CFR Part 50 *National Primary and Secondary Ambient Air Quality Standards*
	40 CFR §51.166 *Prevention of Significant Deterioration of Air Quality*
	40 CFR Part 60 *Standards of Performance for New Stationary Sources*
	40 CFR Part 61 *National Emission Standards for Hazardous Air Pollutants*
R.61-68 *Water Classification and Standards* R.61-69 *Classified Waters*	40 CFR 131 *Water Quality Standards*
R.61-79 *Hazardous Waste Management Regulations*	40 CFR Parts 260-266, 268, 270 (RCRA Subtitle C implementing regulations)
R.61-82 *Proper Closeout of Wastewater Treatment Facilities*	No federal equivalent

7.2.1 ENVIRONMENTAL PROTECTION PERMITS

Clean Air Act, as amended, (42 USC 7401 et seq.), (40 CFR Parts 50-99); South Carolina Pollution Control Act [Section 48-1-10 et seq., SCDHEC Regulation 61-62]

The Clean Air Act, as amended, is intended to "protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." Section 118 of the Act requires Federal agencies, such as DOE, with jurisdiction over any property or facility that might result in the discharge of air pollutants, to comply with "all Federal, State, interstate, and local requirements" related to the control and abatement of air pollution.

The Act requires EPA to establish National Ambient Air Quality Standards to protect public health, with an adequate margin of safety, from any known or anticipated adverse effects of a regulated pollutant (42 USC 7409). It also requires the establishment of national standards of performance for new or modified stationary sources of atmospheric pollutants (42 USC 7411) and the evaluation of specific emission increases to prevent a significant deterioration in air quality (42 USC 7470). In addition, the Clean Air Act regulates emissions of hazardous air pollutants, including radionuclides, through the National Emission Standards for Hazardous Air Pollutants (NESHAP) program (42 USC 7412). Air emission standards are established at 40 CFR Parts 50 through 99. The following describes four key aspects of the Clean Air Act.

- ***Prevention of Significant Deterioration*** – Prevention of Significant Deterioration, as defined by the Clean Air Act, applies to major stationary sources and is designed to permanently limit the degradation of air quality from specific pollutants in areas that meet attainment standards. The Prevention of Significant Deterioration regulations apply to new construction and to major modifications made to stationary sources. A major modification is defined as a net increase in emissions beyond thresholds listed at 40 CFR 51.166(b)(23). Construction or modifications of facilities that fall under this classification are subject to a preconstruction review and permitting under the program that is outlined in the Clean Air Act. In order to receive approval, DOE must show that the source (1) will comply with ambient air quality levels designed to prevent deterioration of air quality, (2) will employ "best available control technology" for each pollutant regulated under the Clean Air Act that will emit significant amounts, and (3) will not adversely affect visibility.

- ***Title V Operating Permit*** – Congress amended the Clean Air Act in 1990 to include requirements for a comprehensive operating permit program. Title V of the 1990 amendments requires EPA to develop a Federally enforceable operating permit program for air pollution sources to be administered by the state and/or local air pollution agencies. The purpose of this permit program is to consolidate in a single document all of the Federal and state regulations applicable to a source, in order to facilitate source compliance and enforcement. The EPA promulgated regulations at Section 107 and 110 of the Clean Air Act that define the requirements for state programs.

- ***Hazardous Air Pollutants*** – Hazardous air pollutants are substances that may cause health and environmental effects at low concentrations. Currently, 189 compounds have been identified as hazardous air pollutants. A major source is defined as any stationary source, or a group of stationary sources, located within a contiguous area under common control that emits or has the potential to emit at least 10 tons per year of any single hazardous air pollutant or 25 tons per year of a combination of pollutants.

  The 1990 amendments to the Clean Air Act substantially revised the program to regulate potential emissions of hazardous air pollutants. The aim of the new control program is to require state-of-the-art pollution control technology on most existing and all new emission sources. These provisions regulate emissions by promulgating emissions limits reflecting use of the maximum achievable control technology. These emission limits are then incorporated into a facility's operating permit.

- ***National Emission Standards for Hazardous Air Pollutants for Radionuclides*** – Radionuclide emissions other than radon from DOE facilities are also covered under the NESHAP program (40 CFR Part 61, Subpart H). To determine compliance with the standard, an effective dose equivalent value for the maximally exposed members of the public is calculated by using EPA-approved sampling procedures, computer models, or other EPA-approved procedures. EC

  Any fabrication, erection, or installation of a new building or structure within a facility whose emissions would result in an effective dose equivalent to a member of the public that would exceed 0.1 millirem per year would require that an application be submitted to EPA. This application must include the name of the applicant, the location or proposed location of the source, and technical information describing the source. If the application is for a modification of an existing facility, information provided to EPA must include the precise nature of the proposed changes,

the productive capacity of the source before and after the changes are completed, and calculations of estimates of emissions before and after the changes are completed.

EPA has overall authority for the Clean Air Act; however, it delegates primary authority to states that have established an air pollution control program approved by EPA. In South Carolina, EPA has retained authority over radionuclide emissions (40 CFR Part 61) and has delegated to SCDHEC the responsibility for the rest of the regulated pollutants under the authority of the South Carolina Pollution Control Act (48-1-10 et. seq.,) and SCDHEC Air Pollution Control Regulation 61-62.

Construction and operation permits or exemptions will be required for new nonradiological air emission sources (diesel generators, concrete batch plants, etc.) constructed and operated as part of the HLW tank system closure process. The permits will contain operating conditions and effluent limitations for pollutants emitted from the facilities (see Table 7-1).

DOE will determine if a NESHAP permit will be required for radiological emissions from any facilities (stacks, process vents, etc.) used in the HLW tank system closure process. As described in 40 CFR Part 61.96, if all emissions from facility operations would result in an effective dose equivalent to a member of the public that would not exceed 0.1 mllirem per year, an application for approval to construct under 40 CFR Part 61.07 is not required to be filed. 40 CFR Part 61.96 also allows DOE to use, with prior EPA approval, methods other than EPA standard methods for estimating the source term for use in calculating the projected dose. If DOE's calculations indicate that the emissions from the HLW tank system closure operations will exceed 0.1 millirem per year, DOE will, prior to the start of construction, complete an application for approval to construct under 40 CFR 61.07.

Federal Clean Water Act, as amended (33 USC 1251 et seq.); SC Pollution Control Act (SC Code Section 48-1-10 et seq., 1976) (SCDHEC Regulation 61-9.122 et. seq.)

The purpose of the Clean Water Act, which amended the Federal Water Pollution Act, is to "restore and maintain the chemical, physical and biological integrity of the Nation's water." The Clean Water Act prohibits the "discharge of toxic pollutants in toxic amounts" to navigable waters of the United States (Section 101). Section 313 of the Act generally requires all branches of the Federal Government engaged in any activity that might result in a discharge or runoff of pollutants to surface waters to comply with Federal, state, interstate, and local requirements.

Under the Clean Water Act, states generally set water quality standards, and EPA or states regulate and issue permits for point-source discharges as part of the National Pollutant Discharge Elimination System (NPDES) permitting program. EPA regulations for this program are codified at 40 CFR Part 122. If the construction or operation of the selected action would result in point-source discharges, DOE could need to obtain an NPDES permit.

EPA has delegated primary enforcement authority for the Clean Water Act and the NPDES permitting program to SCDHEC for waters in South Carolina. In 1996, SCDHEC, under the authority of the Pollution Control Act (48-1-10 et seq.) and Regulation 61-9.122, issued NPDES Permit SC0000175, which addresses wastewater discharges to SRS streams and NPDES permit SCG250162 which addresses general utility water discharges. Permit SC0000175 contains effluent limitations for physical parameters such as flow and temperature and for chemical pollutants with which DOE must comply. DOE will apply for a discharge permit for HLW tank system closure operations if the process chosen results in discharges to waters of the State (see Table 7-1).

Under the authority of the Pollution Control Act, SCDHEC has issued industrial wastewater treatment "as-built" construction permit numbers 14,338, 14,520, and 17,434-IW

covering the SRS HLW tank systems. These permit establish design and operating requirements for the tank systems, based on the standards set forth in Appendix B of the SRS Federal Facility Agreement (see Section 7.3.2).

Sections 401 and 405 of the Water Quality Act of 1987 added Section 402(p) to the Clean Water Act. Section 402(p) requires the EPA to establish regulations for the Agency or individual states to issue permits for stormwater discharges associated with industrial activity, including construction activities that could disturb five or more acres (40 CFR Part 122). SCDHEC has issued a General Permit for Storm Water Discharges Associated with Industrial Activities (Permit No. SCR000000), authorizing stormwater discharges to the waters of the State of South Carolina in accordance with effluent limitations, monitoring requirements, and conditions set forth in the permit. This permit requires preparation and submittal of a Pollution Prevention Plan for all new and existing point source discharges associated with industrial activity. Accordingly, DOE Savannah River Operations Office has developed a Storm Water Pollution Prevention Plan for storm water discharges at SRS. The SRS Storm Water Pollution Prevention Plan would need to be revised to include pollution prevention measures to be implemented for HLW tank system operations (See Table 7-1), if industrial activities are exposed to storm water. SCDHEC has issued a General Permit for storm water discharges from construction activities that are "Associated with Industrial Activity" (Permit No. SCR100000). An approved plan would be needed that includes erosion control and pollution prevention measures to be implemented for construction activities.

EC

Section 404 of the Clean Water Act requires that a 404 permit be issued for discharge of dredge or fill material into the waters of the United States. The authority to implement these requirements has been given to the U.S. Army Corps of Engineers. Section 401 of the Clean Water Act requires certification that discharges from construction or operation of facilities, including discharges of dredge and fill material into navigable waters, will comply with applicable water standards. This certification, which is granted by SCDHEC, is a prerequisite for the 404 permit. DOE does not believe that a 404 permit will be required for the HLW tank system closures.

Federal Safe Drinking Water Act, as amended [42 USC 300 (f) et seq., 40 CFR Parts 100-149]; South Carolina Safe Drinking Water Act (Title 44-55-10 et seq.), State Primary Drinking Water Regulations, (SCDHEC R.61-58)

The primary objective of the Safe Drinking Water Act is to protect the quality of water supplies. This law grants EPA the authority to protect quality of public drinking water supplies by establishing national primary drinking water regulations. In accordance with the Safe Drinking Water Act, the EPA has delegated authority for enforcement of drinking water standards to the states. Regulations (40 CFR Part 123, 141, 145, 147, and 149) specify maximum contaminant levels (MCLs), including those for radioactivity, in public water systems, which are generally defined as systems that serve at least 15 service connections or regularly serve at least 25 year-round residents. Construction and operation permits would be required for lines to drinking water supply systems associated with HLW tank closure activities (see Table 7-1). Other programs established by the Safe Drinking Water Act include the Sole Source Aquifer Program, the Wellhead Protection Program, and the Underground Injection Control Program.

EC

As a regulatory practice and policy, the Safe Drinking Water Act MCLs are also used as groundwater protection standards. For example, the regulations specify that the average annual concentration of manmade radionuclides in drinking water shall not produce a dose equivalent to the total body or an internal organ dose greater than 4 mrem per year beta-gamma activity. This radionuclide MCL is the primary performance objective for the SRS HLW tank system closures.

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EPA has delegated primary enforcement authority to SCDHEC for public water systems in South Carolina. Under the authority of the South Carolina Safe Drinking Water Act (44-55-10 et seq.), SCDHEC has established a drinking water regulatory program (R.61-58). SCDHEC has also established groundwater and surface water classifications and standards under
EC | R. 61-68. Along with the Federal MCLs (40 CFR 141), these South Carolina water quality standards are the groundwater and surface water performance standards applicable to closure of the HLW tank systems.

Resource Conservation and Recovery Act, as amended (Solid Waste Disposal Act) (42 USC 6901 et seq.); South Carolina Hazardous Waste Management Act, Section 44-56-30, South Carolina Hazardous Waste Management Regulations (R.61-79.124 et seq.)

RCRA regulates the treatment, storage, and disposal of hazardous wastes. The EPA regulations implementing RCRA are found in 40 CFR Parts 260-280. These regulations define hazardous wastes and specify hazardous waste transportation, handling, treatment, storage, and disposal requirements. This area of the law deals with two different approaches to regulation. First, RCRA regulates the wastes themselves and sets standards for waste forms that may be disposed. Second, RCRA regulates the design and operation of the waste management facilities and establishes standards for their performance.

EPA defines waste that exhibits the characteristics of ignitability, corrosivity, reactivity, or toxicity as "characteristic" hazardous waste. EPA has also identified certain materials as hazardous waste by listing them in the RCRA regulations. These materials are referred to as "listed" hazardous waste. "Mixed waste" is radioactively contaminated hazardous waste. The definition of "solid waste" in RCRA specifically excludes the radiological component (source, special nuclear, or byproduct material as defined by the Atomic Energy Act). As a result, mixed waste is regulated under multiple authorities: by RCRA, as implemented by EPA or authorized states for the hazardous waste components; and by the Atomic Energy Act for radiological components, as implemented by either DOE or the NRC. | EC

RCRA applies mainly to active facilities that generate and manage hazardous waste. This law imposed management requirements on generators and transporters of hazardous waste and upon owners and operators of treatment, storage, and disposal facilities. EPA has established a comprehensive set of regulations governing all aspects of treatment, storage, and disposal facilities, including location, design, operation, and closure. Pursuant to Section 3006 of the Act, any state that seeks to administer and enforce a hazardous waste program pursuant to RCRA may apply for EPA authorization of its program. EPA has delegated primary enforcement authority to SCDHEC, which has established hazardous waste management requirements under SC Regulation R.61-79.

Under Section 3004(u) of RCRA, DOE is required to assess releases from solid waste management units and implement corrective action plans where necessary. The RCRA corrective action requirements for SRS are set forth in the Federal Facility Agreement (Section 7.3.2).

The HLW managed in the F- and H-Area Tank Farms is considered mixed waste because it exhibits characteristics of RCRA hazardous waste (i.e., corrosivity and toxicity for certain metals) and contains source, special nuclear, or by-product material regulated under the Atomic Energy Act. Waste removed from the tank systems will be managed in accordance with applicable RCRA requirements (i.e., treated to meet the land disposal restrictions standards prior to disposal). The HLW tank systems are exempt from the design and operating standards and permitting requirements for hazardous waste management units because they are wastewater treatment units regulated under the Clean Water Act [see 40 CFR 260.10, 264.1(g)(6), and 270.1(c)(2)(v)].

The Federal Facility Compliance Act (42 USC 6921 (et. seq.)

The Federal Facility Compliance Act amended RCRA in 1992 and requires DOE to prepare plans for developing treatment capacity for mixed wastes stored or generated at each facility. After consultation with other affected states, the host-state or EPA must approve each plan. The appropriate regulator must also issue an order requiring compliance with the plan.

On September 20, 1995, SCDHEC approved the *Site Treatment Plan* for SRS. SCDHEC issued a consent order, signed by DOE, requiring compliance with the plan on September 29, 1995. DOE provides SCDHEC with annual updates to the information in the *SRS Site Treatment Plan*. DOE would be required to notify SCDHEC of any new mixed waste streams generated as result of HLW tank system closure activities.

7.2.2 PROTECTION OF BIOLOGICAL, HISTORIC, AND ARCHAEOLOGICAL RESOURCES

Endangered Species Act, as amended (16 USC 1531 et seq.)

The Endangered Species Act provides a program for the conservation of threatened and endangered species and the ecosystems on which those species rely. All Federal agencies must assess whether the potential impacts of a proposed action could adversely affect threatened or endangered species or their habitat. If so, the agency must consult with the U.S. Fish and Wildlife Service (part of the U.S. Department of the Interior) and the National Marine Fisheries Service (part of the U.S. Department of Commerce), as required under
EC | Section 7 of the Act. The outcome of this consultation may be a biological opinion by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service that states whether the proposed action would jeopardize the continued existence of the species under consideration. If there is non-jeopardy opinion, but if some individuals might be killed incidentally as a result of the proposed action, the Services can determine that such losses are not prohibited as long as measures outlined by the Services are followed. Regulations implementing the Endangered Species Act are codified at 50 CFR Part 15 and 402.

The HLW tank systems are located within fenced, disturbed industrial areas. Construction associated with closure of the tank systems would not disturb any threatened or endangered species, would not degrade any critical or sensitive habitat, and would not affect any jurisdictional wetland. Therefore DOE concludes that no consultation with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service concerning the alternatives considered in this EIS is required.

The following statutes pertain to protection of animals or plants, historic sites, archaeological resources, and items of significance to Native Americans. DOE does not expect these requirements to apply to the closure of the SRS HLW tank systems because these facilities are located in previously disturbed industrial areas.

- Migratory Bird Treaty Act, as amended (16 USC 703 et seq.)
- Bald and Golden Eagle Protection Act, as amended (16 USC 668-668d)
- National Historic Preservation Act, as amended (16 USC 470 et seq.)
- Archaeological Resource Protection Act, as amended (16 USC 470 et seq.)
- Native American Grave Protection and Repatriation Act of 1990 (25 USC 3001)
- American Indian Religious Freedom Act of 1978 (42 USC l996)

7.3 Statutes and Regulations Related to Emergency Planning, Worker Safety, and Protection of Public Health and the Environment

7.3.1 ENVIRONMENTAL PROTECTION

National Environmental Policy Act of 1969, as amended (42 USC 4321 et seq.)

NEPA requires agencies of the Federal Government to prepare EISs on potential impacts of proposed major Federal actions that may significantly affect the quality of the human environment. DOE has prepared this EIS in accordance with the requirements of NEPA, as implemented by Council on Environmental Quality regulations (40 CFR Parts 1500 through 1508) and DOE NEPA regulations (10 CFR Part 1021).

Pollution Prevention Act of 1990 (42 USC 13101 et seq.)

The Pollution Prevention Act of 1990 establishes a national policy for waste management and pollution control that focuses first on source reduction, then on environmentally safe recycling, treatment, and disposal. DOE requires each of its sites to establish specific goals to reduce the generation of waste. If the Department were to build and operate facilities, it would also implement a pollution prevention plan.

Comprehensive Guideline for Procurement of Products Containing Recovered Materials (40 CFR Part 247)

This regulation is issued under the authority of Section 6002 of RCRA and Executive Order 12783, which set forth requirements for Federal agencies to procure products containing recovered materials for use in their operations, using guidelines established by the EPA. The purpose of these regulations is to promote recycling by using government purchasing to expand markets for recovered materials. RCRA Section 6002 requires that any purchasing agency, when using appropriated funds to procure an item, shall purchase it with the highest percentage of recovered materials practicable. The procurement of materials to be used in HLW tank system closure activities should be conducted in accordance with these regulations.

Toxic Substances Control Act, as amended (USC 2601 et seq.) (40 CFR Part 700 et seq.)

The Toxic Substances Control Act provides EPA with the authority to require testing of both new and old chemical substances entering the environment and to regulate them where necessary. The Act also regulates the manufacture, use, treatment, storage, and disposal of certain toxic substances not regulated by RCRA or other statutes, specifically polychlorinated biphenyls, chlorofluorocarbons, asbestos, dioxins, certain metal-working fluids, and hexavalent chromium. DOE does not expect to use these materials during closure of the HLW tank systems. Programs and procedures would need to be implemented to address appropriate management and disposal of waste generated as a result of their use, if necessary.

7.3.2 EMERGENCY PLANNING AND RESPONSE AND PUBLIC HEALTH

This section discusses the regulations that address protection of public health and worker safety and require the establishment of emergency plans and coordination with local and Federal agencies related to facility operations. DOE Orders generally set forth the programs and procedures required to implement the requirements of these regulations. See Section 7.5.

Atomic Energy Act of 1954, as amended (42 USC 2011 et seq.)

The Atomic Energy Act, as amended, provides fundamental jurisdictional authority to DOE and the NRC over governmental and commercial use of nuclear materials. The Atomic Energy Act EC

ensures proper management, production, possession, and use of radioactive materials. It
EC gives the NRC specific authority to regulate the possession, transfer, storage, and disposal of nuclear materials, as well as aspects of transportation packaging design requirements for radioactive materials, including testing for
EC packaging certification. NRC regulations applicable to the transportation of radioactive materials (10 CFR Part 71 and 73) require that shipping casks meet specified performance criteria under both normal transport and hypothetical accident conditions.

The Atomic Energy Act provides DOE the authority to develop generally applicable standards for protecting the environment from radioactive materials. In accordance with the Atomic Energy Act, DOE has established a system of requirements that it has issued as DOE Orders.

DOE Orders and regulations issued under authority of the Atomic Energy Act include the following:

- ***DOE Order 435.1 (Radioactive Waste Management)*** – This Order and its associated Manual and Guidance (DOE 1999) establish authorities, responsibilities, and requirements for the management of DOE HLW, transuranic waste, low-level waste, and the radioactive component of mixed waste. Those documents provide detailed HLW management requirements including: waste incidental to reprocessing determinations; waste characterizations, certification, storage, treatment, and disposal; and HLW facility design and closure.

- ***DOE Order 5400.1 (General Environmental Protection Program)*** – This Order establishes environmental protection program requirements, authorities, and responsibilities for DOE operations for ensuring compliance with applicable Federal, state, and local environmental protection laws and regulations, as well as internal DOE policies.

- ***DOE Order 5400.5 (Radiation Protection of the Public and the Environment)*** – This Order establishes standards and requirements for DOE and DOE contractors with respect to protection of members of the public and the environment against undue risk from radiation. The requirements of this Order are also codified in the proposed 10 CFR Part 834, Radiation Protection of the Public and the Environment.

- ***DOE Order 440.1A (Worker Protection Management for DOE Federal and Contractor Employees)*** – This Order establishes the framework for an effective worker protection program that will reduce or prevent injuries, illnesses, and accidental losses by providing DOE Federal and contractor workers with a safe and healthful workplace.

Section 202(4) of the Energy Reorganization Act of 1974 (42 USC §5842(4)) gives NRC licensing and related regulatory authority over DOE "facilities authorized for the express purpose of subsequent long-term storage of high-level radioactive waste generated by the Administration [now known as DOE] which are not used for, or are part of, research and development activities." DOE has determined that NRC's licensing authority is limited to DOE facilities that are (1) authorized by Congress for the express purpose of long-term storage of HLW and (2) developed and constructed after the passage of the Energy Reorganization Act (Sullivan 1998). None of the SRS HLW tank systems meets both of these criteria. DOE's Savannah River Operations Office has consulted with NRC concerning criteria regarding incidental waste for the SRS tank residuals.

Atomic Energy Act of 1954, as amended (42 USC 2011 et seq.) Quantities of Radioactive Materials Requiring Consideration of the Need for an Emergency Plan for Responding to a Release (10 CFR Part 30.72 Schedule C)

This list is the basis for both the public and private sectors to determine if the radiological materials they deal with must have an emergency response plan for unscheduled releases. It is one of the threshold criteria documents for DOE Emergency Preparedness Hazard Assessments required by DOE Order 151.1, "Comprehensive Emergency Management System." An emergency response plan addressing HLW tank system closure operations would need to be prepared in accordance with this regulation.

Reorganization Plan No. 3 of 1978, Public Health and Welfare (42 USC 5121 et seq.), Emergency Management and Assistance (44 CFR Part 1-399)

These regulations generally include the policies, procedures, and responsibilities of the Federal Emergency Management Agency, NRC, and DOE for implementing a Federal Emergency Preparedness Program, including radiological planning and preparedness. An emergency response plan, including radiological planning and preparedness for HLW tank system closure operations, would need to be prepared and implemented in accordance with this regulation.

Emergency Planning and Community Right-to-Know Act of 1986 (42 USC 11001 et seq.) (also known as "SARA Title III")

Under Subtitle A of the Emergency Planning and Community Right-to Know Act, Federal facilities, including those owned by DOE, must provide information on hazardous and toxic chemicals to state emergency response commissions, local emergency planning committees, and EPA. The goal of providing this information is to ensure that emergency plans are sufficient to respond to unplanned releases of hazardous substances. The required information includes inventories of specific chemicals used or stored and descriptions of releases that occur from sites. This law, implemented at 40 CFR Parts 302 through 372, requires agencies to provide material safety data sheet reports, emergency and hazardous chemical inventory reports, and toxic chemical release reports to appropriate local, state, and Federal agencies.

DOE submits hazardous chemical inventory reports for SRS to SCDHEC. The chemical inventory could change, depending on the HLW tank system closure alternative(s) DOE implemented; however, subsequent reports would reflect any change to the inventory.

Hazardous Materials Transportation Act, 49 U.S.C. 1801 and Regulations

Federal law provides for uniform regulation of the transportation of hazardous and radioactive materials. Transport of hazardous and radioactive materials, substances, and wastes is governed by U.S. Department of Transportation, NRC, and EPA regulations. These regulations may be found in 49 CFR 100-178, 10 CFR 71, and 40 CFR 262, respectively. EC

U.S. Department of Transportation hazardous material regulations govern the hazard communication (marking, hazard labeling, vehicle placarding, and emergency response telephone number) and transport requirements, such as required entries on shipping papers or EPA waste manifests. NRC regulations applicable to radioactive materials transportation are found in 10 CFR 71 and detail packaging design requirements, including the testing required for package certification. EPA regulations govern offsite transportation of hazardous wastes. DOE Order 460.1A (Packaging and Transportation Safety) sets forth DOE policy and assigns responsibilities to establish safety requirements for the proper packaging and transportation of DOE offsite shipments and onsite transfers of hazardous materials and for modal transport. (Offsite is any area within or outside a DOE site to which the public has free and uncontrolled access; EC

onsite is any area within the boundaries of a DOE site or facility to which access is controlled.)

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (42 USC 9601 et seq.) National Oil and Hazardous Substance Contingency Plan (40 CFR Part 300 et seq.)

CERCLA, as amended by the Superfund Amendments and Reauthorization Act, authorizes EPA to require responsible site owners, operators, arrangers, and transporters to clean up releases of hazardous substances, including certain radioactive substances. This Act applies to both the Federal government and to private citizens. Executive Order 12580 delegates to heads of executive departments and agencies the responsibility for undertaking remedial actions for releases or threatened releases at sites that are not on the National Priorities List and removal actions, other than emergencies, where the release is from any facility under the jurisdiction or control of executive departments or agencies.

Sites determined to have a certain level of risk to health or the environment are placed upon the National Priorities List so their clean-up can be scheduled and tracked to completion. SRS was placed on the National Priorities List in 1989.

DOE, SCDHEC, and EPA have signed a Federal Facility Agreement to coordinate cleanup at SRS, as required by Section 120 of CERCLA. The Agreement addresses RCRA corrective action and CERCLA requirements applicable to cleanup at SRS. Section IX of the Agreement sets forth requirements for the SRS HLW tank systems. Design and operating standards for the HLW tank systems are found in Appendix B of the Agreement. DOE has submitted a waste
EC | removal plan and schedule for the tank systems that do not meet the applicable secondary containment standards to SCDHEC. The approved waste removal schedule appears in Appendix B of the *High-Level Waste Tank Closure Program Plan* (DOE 1996b). DOE must provide SCDHEC with an annual report on the status of the HLW tank systems being removed from service. After waste removal is completed, the tank systems are available for closure in accordance with general closure strategy presented in DOE (1996a).

CERCLA also establishes an emergency response program in the event of a release or a threatened release to the environment. The Act includes requirements for reporting to Federal and state agencies releases of certain hazardous substances in excess of specified amounts. The requirements of the Act could apply to the proposed project in the event of a release of hazardous substances to the environment.

CERCLA also addresses damages for the injury, destruction, or loss of natural resources that are not or cannot be addressed through remedial action. The Federal government, state governments, and Indian tribes are trustees of the natural resources that belong to, are managed by, or are otherwise controlled by those respective governing bodies. As trustees, they may assess damages and recover costs necessary to restore, replace, or acquire equivalent resources when there is injury to natural resources as a result of release of a hazardous substance.

Occupational Safety and Health Act of 1970, as amended (29 USC 651 et seq.); Occupational Safety and Health Administration Emergency Response, Hazardous Waste Operations and Worker Right to Know (29 CFR Part 1910 et seq.)

The Occupational Safety and Health Act (29 USC 651) establishes standards to enhance safe and healthful working conditions in places of employment throughout the United States. The Act is administered and enforced by the Occupational Safety and Health Administration (OSHA), a U.S. Department of Labor agency. While OSHA and EPA both have a mandate to reduce exposures to toxic substances, OSHA's jurisdiction is limited to safety and health conditions that exist in the workplace environment. In general, under the Act, it is the duty of each employer to furnish all employees a

place of employment free of recognized hazards likely to cause death or serious physical harm. Employees have a duty to comply with the occupational safety and health standards and all rules, regulations, and orders issued under the Act. The OSHA regulations (29 CFR) establish specific standards telling employers what must be done to achieve a safe and healthful working environment. This regulation sets down the OSHA requirements for employee safety in a variety of working environments. It addresses employee emergency and fire prevention plans (Section 1910.38), hazardous waste operations and emergency response (Section 1910.120), and hazard communication (Section 1910.1200) that enable employees to be aware of the dangers they face from hazardous materials at their workplaces. DOE places emphasis on compliance with these regulations at its facilities and prescribes, through DOE Orders, OSHA standards that contractors shall meet, as applicable to their work at Government-owned, contractor-operated facilities. DOE keeps and makes available the various records of minor illnesses, injuries, and work-related deaths required by OSHA regulations.

Noise Control Act of 1972, as amended (42 USC 4901 et seq.)

Section 4 of the Noise Control Act directs Federal agencies to carry out programs in their jurisdictions "to the fullest extent within their authority" and in a manner that furthers a national policy of promoting an environment free from noise that jeopardizes health and welfare. This law provides requirements related to noise that would be generated by activities associated with tank closures.

7.4 Executive Orders

The following Executive Orders would be in effect for the HLW tank system closures. DOE Orders generally set forth the programs and procedures required to implement the requirements of the orders.

Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands)

Executive Order 11988 directs Federal agencies to establish procedures to ensure that any Federal action taken in a floodplain considers the potential effects of flood hazards and floodplain management and avoids floodplain impacts to the extent practicable.

Executive Order 11990 directs Federal agencies to avoid new construction in wetlands unless there is no practicable alternative and unless the proposed action includes all practicable measures to minimize harm to wetlands that might result from such use. DOE requirements for compliance with floodplain and wetlands activity are codified at 10 CFR 1022.

Executive Order 12856 (Right-to-Know Laws and Pollution Prevention Requirements)

This Order directs Federal agencies to: reduce and report toxic chemicals entering any waste stream; improve emergency planning, response, and accident notification; and encourage the use of clean technologies and testing of innovative prevention technologies. In addition, the Order states that Federal agencies are persons for purposes of the Emergency Planning and Community Right-to-Know Act (SARA Title III), which requires agencies to meet the requirements of the Act.

Executive Order 12898 (Environmental Justice)

This Order directs Federal agencies, to the extent practicable, to make the achievement of environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations in the United States and its territories and possessions. The Order

provides that the Federal agency responsibilities it establishes are to apply equally to Native American programs.

Executive Order 12902 (Energy Efficiency and Water Conservation at Federal Facilities)

Executive Order 12902 requires Federal agencies to develop and implement a program for conservation of energy and water resources.

Executive Order 13045 (Protection of Children from Environmental Health Risks and Safety Risks)

Because of the growing body of scientific knowledge that demonstrates that children may suffer disproportionately from environmental health and safety risks, Executive Order 13045 directs each Federal agency to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children.

Executive Order 13112 (Invasive Species)

Executive Order 13112 requires Federal agencies whose actions may affect the status of invasive species to identify such actions and to use relevant programs and authorities to prevent the introduction of invasive species, detect and respond rapidly to control the populations of such species, monitor invasive species populations, provide for restoration of native species and habitat conditions in ecosystems that have been invaded, conduct research on invasive species and provide for environmentally sound control, and promote public education on invasive species and the means to address them.

7.5 DOE Regulations and Orders

Through the authority of the Atomic Energy Act, DOE is responsible for establishing a comprehensive health, safety, and environmental program for its facilities. The regulatory mechanisms through which DOE manages its facilities are the promulgation of regulations and the issuance of DOE Orders. Table 7-6 lists the major DOE Orders applicable to the closure of the SRS HLW tank systems.

The DOE regulations address such areas as energy conservation, administrative requirements and procedures, nuclear safety, and classified information. For the purposes of this EIS, relevant regulations include 10 CFR Part 820, *Procedural Rules for DOE Nuclear Facilities*; 10 CFR Part 830, *Nuclear Safety Management; Contractor and Subcontractor Activities*; 10 CFR Part 835, *Occupational Radiation Protection*; 10 CFR Part 1021, *Compliance with NEPA*; and 10 CFR Part 1022, *Compliance with Floodplains/Wetlands Environmental Review Requirements*. DOE has enacted occupational radiation protection standards to protect DOE and its contractor employees. These standards are set forth in 10 CFR Part 835, *Occupational Radiation Protection*; the rules in this part establish radiation protection standards, limits, and program requirements for protecting individuals from ionizing radiation resulting from the conduct of DOE activities, including those conducted by DOE contractors. The activity may be, but is not limited to, design, construction, or operation of DOE facilities.

Table 7-6. DOE Orders and Standards relevant to closure of the HLW tank systems.

	DOE Orders
151.1	Comprehensive Emergency Management System
225.1A	Accident Investigations
231.1	Environment, Safety and Health Reporting
232.1A	Occurrence Reporting and Processing of Operations Information
420.1	Facility Safety
425.1A	Startup and Restart of Nuclear Facilities
430.1A	Life Cycle Asset Management
435.1	Radioactive Waste Management
440.1A	Worker Protection Management for DOE Federal and Contractor Employees
451.1A	National Environmental Policy Act Compliance Program
460.1A	Packaging and Transportation Safety
460.2	Departmental Materials Transportation and Packaging Management
470.1	Safeguards and Security Program
471.1	Identification and Protection of Unclassified Controlled Nuclear Information
471.2A	Information Security Program
472.1B	Personnel Security Activities
1270.2B	Safeguards Agreement with the International Atomic Energy Agency
1300.2A	Department of Energy Technical Standards Program
1360.2B	Unclassified Computer Security Program
3790.1B	Federal Employee Occupational Safety and Health Program
4330.4B	Maintenance Management Program
4700.1	Project Management System
5400.1	General Environmental Protection Program
5400.5	Radiation Protection of the Public and the Environment
5480.19	Conduct of Operations Requirements for DOE Facilities
5480.20A	Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities
5480.21	Unreviewed Safety Questions
5480.22	Technical Safety Requirements
5480.23	Nuclear Safety Analysis Report
5484.1	Environmental Protection, Safety, and Health Protection Information Reporting Requirements
5632.1C	Protection and Control of Safeguards and Security Interests
5633.3B	Control and Accountability of Nuclear Materials
5660.1B	Management of Nuclear Materials
6430.1A	General Design Criteria
1020-94	Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities
1021-93	Natural Phenomena Hazards Performance Categorization Guidelines for Structures, Systems, and Components
1024-92	Guidelines for Use of Probabilistic Seismic Hazard Curves at Department of Energy Sites for Department of Energy Facilities
1027-92	Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23 Nuclear Safety Analysis Reports
3009-94	Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports
3011-94	Guidance for Preparation of DOE 5480.22 (TSR) and DOE 5480.23 (SAR) Implementation Plans

References

DOE (U.S. Department of Energy), 1996a, *Industrial Wastewater Closure Plan for the F- and H-Area High-Level Waste Tank Systems, Savannah River Site, Construction Permit Numbers 14,338, 14,520, 17,424-IW,* Savannah River Operations Office, Aiken, South Carolina.

DOE (U.S. Department of Energy), 1996b, *High-Level Waste Tank Closure Program Plan*, Revision 0, Savannah River Operations Office, Aiken, South Carolina, December 16.

DOE (U.S. Department of Energy), 1997a, *Industrial Wastewater Closure Module for the High-Level Waste Tank 17 System*, Savannah River Operations Office, Savannah River Site, Aiken, South Carolina.

DOE (U.S. Department of Energy), 1997b, *Regulatory Basis for Incidental Waste Classification at the Savannah River Site High-level Waste Tank Farms*, Revision 1, Savannah River Operations Office, Aiken, South Carolina, April 30.

DOE (U.S. Department of Energy), 1999, *Radioactive Waste Management*, DOE Order and Manual 435.1, Office of Environmental Management, Washington DC, July 9. (Available at http://www.explorer.doe.gov:1776/pdfs/doe/doetext/neword/435/m4351-1.pdf).

Sullivan, M. A., 1998, U.S. Department of Energy, General Counsel, letter to J. T. Greeves, U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, "Natural Resources Defense Council Petition to Exercise Licensing Authority over Savannah River Site High-Level Waste Tanks," September 30.